Frankly Speaking

We Dedicate this Issue

THIS issue of TRAFFIC ENGINEERING is respectfully dedicated to you sixty-five members of the Institute of Traffic Engineers who are so gallantly and efficiently serving with our Nation's Armed Forces at home and overseas. The articles in the following pages reflect the magnitude and complexity of the job being done by our traffic engineers in moving men and supplies up to the fronts, a vital job that is being performed exceptionally well as everyone knows.

When you and others engaged in war traffic engineering return to the problems of moving peacetime traffic, you will come back with new thoughts and measures gained from experience far and wide in the field of highway transport and logistics. This experience, coupled with that of the rest of us at home wll bring a leadership to the traffic engineering profession which it has never before enjoyed.

We as a profession are ready to accept that leadership. But we must realize that in every field of human endeavor he that is first must perpetually live in the white light of publicity, and that in leadership, emulation and envy are ever at work. The results are always the same. The reward is widespread recognition. The punishment—fierce denial and distraction. When a man's work becomes a standard it also becomes a target for the shafts of the envious few. If his work is merely mediocre he will be left severely alone. If he is outstanding it will set a million tongues a-wagging.

Confidence is necessary for contentment and happiness; confidence in ourselves and confidence in others. It is the cornerstone of success. Without it no forward steps can be taken. Along with confidence comes ambition, self control and pride—ambition to be of real service to the world and pride in the fact of accomplishment.

The Traffic Engineer must have all these qualities. He must be possessed of the *Wisdom* of *When to do a thing*, the *Skill of What to do*, and the *Virtue of Doing it*.

Member, Board of Direction

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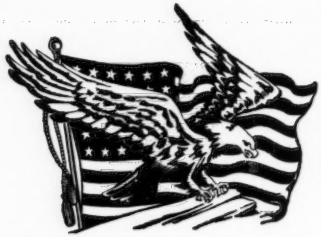

THIS ISSUE OF TRAFFIC ENGINEERING IS RESPECTFULLY DEDICATED TO THE FOLLOWING

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Normandy Invasion Traffic

by 1ST LT. A. W. GOVE

THE invasion of Normandy was the largest of any similar operation in military history up to the present time. With a ratio of one vehicle to every six men of the invading forces, there were bound to be many traffic problems; some that could be anticipated in the planning stages and others that inevitably must develop and be solved behind the battle lines in France. The tactical plan in the U. S. sector called for the establishment of two beach-heads, a drive inland far enough to link them up and obtain a working area for supplies and troops, the sealing off of the Continen Peninsula, the clearing of the Port of Cherbourg, then a general drive south to the Brittany Peninsula. This account covers the period from D-day to D+49, the time of the break through to the south from the St. Lo area. The rapid move across France which immediately followed is another story.

1st Army Traffic Hq.

Long before the invasion, the First U. S. Army organized a Traffic Headquarters as a sub-section of Army G-4. This headquarters was charged with the following duties:

a. Receipt, correlation, and dissemination of traffic information.
b. Preparation of traffic circulation plans.
c. Supervision over and coordination of agencies furnishing traffic information and executing traffic plans.
d. Coordination with other headquarters in the scheduling of and routing of tactical and administrative troop movements.
e. Coordination with civilian traffic authorities.

Under normal operation the Traffic Headquarters is sub-divided into three parts: One for scheduling convoys, one for field reconnaissance, and one for traffic engineering.

The Military Police are charged with maintaining Traffic Control Points on all Main Supply Routes and at each important road junction to aid the movement of convoys, effect specified priorities of movement, enforce traffic regulations, etc.

The Engineers, besides the construction and maintenance of roads and bridges, etc., are charged with the installation and maintenance of road signs. The selection of routes and the signing program is coordinated very closely between the Engineers and Traffic Headquarters.

To cope with the continuing influx of troops over the beach-head, Traffic Sub-Headquarters were established at each of the two beaches to control the routing and dispatch of troops from the beach transit areas to initial bivouac areas. Guides for these moves were provided by parent units or by advance parties of the units themselves who had opportunity to become familiar with the ground.

In a combat zone the area behind the front lines is divided into areas for administration and control. Each Corps that operates under an army is responsible for the administration of traffic in its own area. Each Army has its defined area and the same holds true for sections of the Communication Zone which follows behind the armies. In the beach-head area administered by the First U. S. Army were received the Advance Section of

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The author, on leave from the City of Worcester, Mass., where he was City Traffic Engineer, is an Associate Member of I.T.E.

Commnnication Zone, the Third U. S. Army and many units of the Air Force. At the peak before Third Army and Advance Section Communication Zone became operational and were given designated areas, the vehicles in the First U. S. Army area totaled 150,000.

In drawing up the initial circulation plans before the invasion, the requirements of the assault divisions were coordinated with the organization picked to set up and operate the beach and dump area. A few roads that carried traffic one way inland during the assault phase were reversed in direction when used later by supply vehicles.

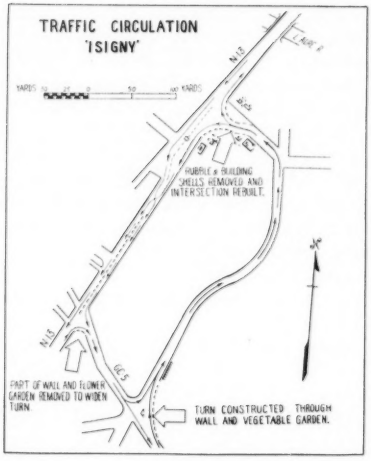
Coordination for the overall picture was achieved by checking these plans through Corps Traffic Headquarters and Army Traffic Headquarters.

Traffic Improvement Projects:

For a relatively long period of time, highway N13 (Paris - Caen - Cherbourg) was the only lateral highway available through First Army area lying between the sea and the front. Most any movement necessitated travel along or across this very busy highway. Many traffic bottlenecks developed that required drastic and immediate action.

Formigny, in peace time a small, quiet village along N13, suddenly became the center of a beehive of activity. The town is centered behind the "OMAHA" beach in the heart of one of the first dump areas. Soon after fighting ceased, it became a center of congestion of shuttling supply vehicles and inbound troops. A traffic circle 1200 feet in diameter constructed through fields and apple orchards soon solved the problem at this location.

The small Port of Isigny with a normal population of 2,200 is the junction point of N13 and GC5. These two routes form a "T" intersection in the heart of town with GC5 as the stem of the T. As in many Normandy towns the streets were narrow and the corners sharp. GC5 at this point was especially narrow. The pattern of traffic flow at this intersection was such that only traffic on one of the three approaches could be allowed to move at one time even with efficient Military Police control.

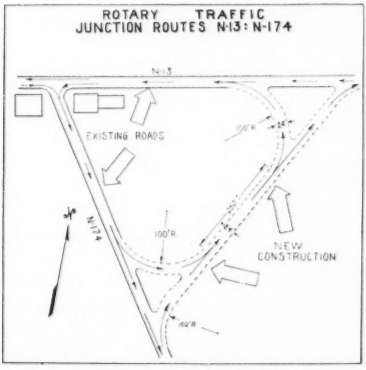


A map study and reconnaissance of the town revealed a back street branching off the stem of the T and circling to the right out to N13. Each intersection was constricted and a concrete road block had been left by the Germans on the back street. However, congestion became so heavy that a rotary traffic control system was decided upon. In short order the Army Engineers enlarged one intersection by building a roadway where three badly damaged houses had stood; the concrete road block was eliminated and traffic was flowing on the rotary plan.

Paralleling civilian experience a definite adjustment period was required with a change of the circulation system. The front was relatively static at this time and the drivers using

Isigny were essentially the same ones each day. A number of large signs were posted and extra Military Police were used to speed the educational process. A few "bugs" also developed when it was found that the extra long army trailers had difficulty negotiating some of the turns. The removal of stone garden walls and the conversion of parts of a French flower garden and a French vegetable garden to roadways soon eliminated the "bugs." At the end of one week the circulation was operating in a reasonable smooth manner and ready to accommodate the heaviest traffic flow of any place in First Army area.

Anticipating the fall of St. Lo, then more or less centered on the front of the U. S. sector, highway N174, running south from N13 from a point between the two beaches promised to be the most heavily travelled "up and down" route. Four days after a rotary traffic design was given to the Army Engineers by Traffic Headquarters, construction was complete and traffic operating in a rotary manner where before a plain "T" intersection existed. The use of 250-foot weaving distance and 100-foot minimum turning radius, the best local topography would allow, proved satisfactory.

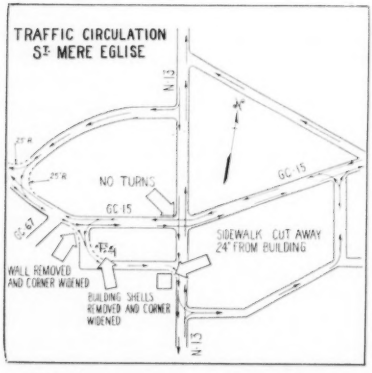


The selection of one-way streets in Carentan for the main lateral traffic solved the traffic problem initially. Traffic from this town to the front for a considerable period was very light inasmuch as the front was only a mile or two south of the town. But later as the front moved to the south, traffic increased in that direction. A two-story Inn stood in the way on one corner. It not only blocked the view but blocked the sidewalk being built to the curb line. This building had been spared by the Air Corps, U. S. Artillery, and German Artillery. However, only a short time was required for its removal by the Engineers and the rounding of the corner. Thus another traffic bottleneck was removed for reasons of military expediency that in peace time a traffic minded progressive community would have removed long before.

Ste Mere Eglise, captured by the Paratroopers on D-day, lies behind "UTAH" beach on N13 in much a similar position as Formigny behind "OMAHA" beach. N13 runs through the center of the town on a closely built up narrow street. At the principal cross street, turning traffic was of such proportions that the Military Police could allow movement on only one approach at a time during the greater portion of the day. In the

Trucks Operating on a Twenty Hour Schedule—Continuing their major role as the life blood of the advancing armies, trucks, jeeps, weapon carriers, M-19s, and the various mobile paraphernalia of the U. S. Army Transportation Corps has steadily assumed a program of 100% efficiency by operating on a twenty hour schedule. This allows four hours for maintenance of equipment. Two drivers keep the trucks rolling full time. One man sleeps while his partner drives and their route expands day by day as the front lines advance.

busiest hours traffic backed up long distances in all directions. To enlarge the intersection and its approaches effectively would require extensive removal of buildings and roadway widening in an already heavily congested area. The solution here was the elimination of all turns at the key intersection so that north and south, or east and west traffic could flow simultaneously. For the turns, back streets and alleys were utilized after making necessary improvements to accommodate military vehicles. Left turning vehicles on N13 were forced to turn right in advance of the principal intersection to get on the cross street; then they crossed N13 with a straight movement. As in Isigny, after a week of education and familiarization, another bad traffic bottleneck was eliminated.



Traffic congestion and delays on N13 were such a problem that a definite study was made of the entire route in First Army area to discover and eliminate impediments and bottlenecks. Outside of the major projects previously described, a number of minor improvements were made. These consisted of the enlargement of restricted intersections with radius to accommodate military vehicles, construction of separate entrances and exits to installations established in fields along the highway, warning signs, directional signs, etc.

Traffic Volumes:

A number of traffic volume counts were made in Army area which revealed some interesting facts. The average daily volume on N13 varied from 3000 near the U. S. - British Army boundary to 16,000 near the center of the U. S. area. The highest volume recorded was at Isigny where a total of 21,000 military vehicles passed over a two-lane highway in 24 hours. The peak hour volume reached a high of 1,600 vehicles or 800 per lane per hour. The traffic stream yielding this volume was composed of all types of military vehicles from the eleven-foot jeep to the monstrous tank transporter. A small proportion of the vehicles included in these counts were operated with trailers.

Peaks in the curve of hourly variation of traffic flow give a strong indication of the high proportion of casual traffic, i.e., traffic not moving in scheduled convoys. A few spot checks showed that approximately 15% of the vehicles in the Army area were moving in convoys of 10 or more vehicles. The balance were moving as individual vehicles or in small groups. It is pertinent to note that the movement of supplies was made by the infiltration or individual dispatch method rather than by scheduled convoy. Loading and unloading conditions were uncertain, distances were short and vehicles were continuously shuttling over regular familiar routes.

At first thought 15% may seem an insignificant proportion of the total but it is a very critical item because of the concentration of large numbers of vehicles in a small space of time. It is essential that the larger movements be organized into march units and serials with time intervals between them to permit the movement of the casual traffic and that these convoys

be routed and scheduled so as not to interfere one with another.

Because of the day time congestion it became necessary for the Traffic Sub-Headquarters at the beaches to dispatch newly arriving units out of the transit area between the hours of 6 P.M. and 8 A.M. This expedient provided a certain measure of relief.

The hours of peak traffic volume on the allied side of the line were undoubtedly the opposite of the other side of the line. Because of the allied air superiority the Germans were forced to make practically all of their moves during hours of darkness. On the other hand the few German planes that did visit the allied side chose the hours of darkness further reducing any incentive for allied forces to travel in the blackout at night.

Examination of volume counts made at many points and observation in the field showed that traffic for an army is heaviest near its center of population. Relatively low volumes occur under normal conditions on the edges or flanks. The various headquarters, installation and supply points are the principal traffic generators. Once these are spotted on a map a reasonable forecast of casual traffic may be made. An army is organized as a unit requiring a flow of supplies and replacements from its rear. Other factors which affect traffic volumes are tactical situation, condition of roads, shape of the Army area, size of Army area, and rate of advance of the front lines.

Conditions in Normandy:

Civilian traffic in Normandy was critical not because of its volume but because of its slow speed. With heavy volumes of military traffic little opportunity was provided for passing the various horse-drawn carts, bicycles, and the coal or wood burning contraptions with truck attached that occasionally found their way onto the middle of the highway. This problem was attacked by prohibiting on the principal military routes all vehicles incapable of attaining 35 kilometers (20 miles) per hour.

The problem of route markings and identification of roads was greatly simplified by the French system of road numbering. Each road is assigned a number and this number is marked on the road stones located at frequent intervals throughout Normandy. This existing marking was extensively supplemented by the liberal use of new route signs and directional signs posted in the manner of similar signs in the U. S. To go with this field marking system the Michelin road map was printed in large quantities for the invading force and distributed widely so that each army driver had one available. Ths map is very accurate in showing alignment and steep grades of all roads, road classification, and route numbers. This map and the route numbering system was very useful in scheduling convoys.

The roads of Normandy were on the whole much better than anticipated by those who had not previously visited this area. This was an agreeable surprise to those who had been conditioned by a stay in England and North Ireland.

The shoulders of the Normandy roads are graded several inches higher

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Captured "Twerps" Assist in Convoy Duties—Darting in and around convoys throughout the highways of France, the German equivalent of our amphibious jeep, nicknamed the "twerp" by members of the U. S. Army Transportation Corps, have "taken over" some of the convoy duties by leading the way and doing odd jobs along the route. This captured equipment is economical to operate but the T. C. men had rather not trust them crossing streams — too many bullet holes.

than the road itself. Drainage is accomplished by frequent lateral ditches across these shoulders. This construction made it natural for drivers to park on the highway rather than climb up on the shoulder where it was also necessary to bump across the drainage ditches. An early vigorous campaign against "on the road" parking by the Military Police, however, was effective in the U. S. sector and drivers soon habitually parked off the travelled surface.

Operating speeds for military vehicles not on combat moves were limited to 35 miles per hour and 25 miles per hour for vehicles in convoy. Convoys were scheduled at "rates of march" of 15 miles per hour and 12½ miles per hour which includes incidental stops.

The break through to the south, east of the St. Lo area released the increasing concentration of troops, supplies, and vehicles. For First Army the traffic problems which up to this time were those of density, like those of a city soon shifted to problems of route selection, etc., more nearly comparable to state highways. But that is another story.

Military Traffic Control in England for "D" Day

by CAPT. WILLIAM H. WELLS

Serving as Chief of Operations of a Road Traffic Headquarters of one of the U. S. Army Transportation Corps Regional Offices in the European Theater.

MINDFUL of the differences between civilian and military traffic problems, the experience of this Road Traffic Hq. during the past year, should be of interest, and perhaps of value, to those concerned with civilian traffic. Field Manual 29-5, "MILITARY POLICE" on pp. 25-26 points out, *"Military traffic control is generally similar to civil traffic control, but differs in certain important respects, due to the nature of military traffic and its purpose. These differences make control more difficult and require certain modifications of control technique. Distinctive characteristics of military traffic include column movements, schedules, priorities and march discipline. Most important aggravating factors are enemy interferences, blackout operation, changing traffic requirements and necessary concentrations of large numbers of vehicles in small areas."*

The most important fact about military traffic, which must always dominate control planning and execution, is that its purpose is furtherance of tactical missions. Traffic efficiency, in the sense of freedom from accidents and congestions, is not an end in itself. That degree and type of efficiency of movement must be sought, through control, which assures fulfillment of the tactical mission of motor transport. Consideration of this often demands that military traffic control practices vary somewhat from those observed in civil practice.

However, the basic principle of spreading traffic by "time" and by "space" does govern in both the military and civilian fields of traffic control. How this was done by this Road Traffic Hq. during the period leading up to "D" day and during the so-called "Build Up" period following "D" day, will be the subject of this article.

English Road Conditions

Winding, twisting narrow roads, bordered by hedgerows bedecked in spring with primroses, may make for a picturesque English countryside, but they also create real hazards for convoys, particularly for those driving at night under blackout conditions. Shoulders for roads are almost unknown (land is too valuable), and well banked curves with full visibility were as rare as control heating. Fortunately, the network of roads was very extensive, even in the less built-up areas. The road surface, even of the secondary roads, (generally tarmac), was uniformly excellent and stood up remarkably well even under the constant use of our heavy tracked vehicles. All bridges were classified according to the number of tons they could bear and were so marked, and all army vehicles were classified according to weight, and had such classification upon a yellow and black disc attached to their front. Such was the picture of the roads available for our use, and which time and circumstance made impossible for us to reconstruct to fit our needs.

The traffic picture prior to "D" day was that of an ever-increasing number of military vehicles appearing on the roads and concentrating in the southern part of England. There was much activity in and around the large depots, concentration of vehicles in exercise and training areas, and a heavy movement towards the marshalling areas by the assault forces lining up for the big push.

Decongesting Traffic Before "D" Day

During the period, which roughly fell between August of 1943 and June 6th of 1944, the Road Traffic Hq. made use of numerous traffic control devices to assure the even and uncongested flow of traffic throughout southern England. The spreading of traffic by "space" was accomplished through the dictation, by the Road Traffic Hq. of all routes to be used by convoys of ten or more vehicles, the designation of by-passes, around the larger cities, the creation of one-way circuits for convoy traffic, and the shutting off of roads near depots for all convoys other than those with business there.

Directives issued by the Theater Commander provided that the Road Traffic Hq. of the Regional Transportation Office will:

(a) Provide timings, schedules and routes, and arrange traffic control with the Base Section Provost Marshal for:
  (1) Columns of 20 or more vehicles.
  (2) Columns of any size moving to or from a port.
  (3) Movements of oversize or especially heavy vehicles.
(b) Arrange for the staging of all movements that may be required en route.
(c) Provide routes for all columns of 10 to 19 vehicles, and for columns of less than 10 vehicles upon request.
(d) Make necessary arrangements for movements not included in any of the above categories upon request.
(e) Issue movement instructions when required.

Since all convoys of above-mentioned sizes must clear their route

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Gas to Front Lines—Late figures released show that it is far more economical to supply gasoline to the front lines in France than it is over the Burma Road. It costs 4/10 gallons of gas to deliver one gallon in France, while almost seven gallons are used in delivering one in China.

through this Hq., a very strong weapon for traffic control was thereby placed in our hands. This Hq. in turn coordinated all moves of 50 or more vehicles with its British counterpart, so that there would be no congestion with British military and civilian traffic.

Coordinated Timing of Trips

Perhaps the greatest advantage this Hq. had over a civilian traffic office was its power to spread traffic by "*time*." Under the directive above quoted, it will be noted that "timings" and "schedules" were given for convoys of 20 or more, convoys to ports or for oversize vehicles, by this Hq. Thus, every convoy was given a certain hour to leave its IP, to arrive at its destination and, where necessary, to pass a critical point (such as an important intersection). The schedules of the various convoys were all coordinated at the Road Traffic Hq. where they were placed on daily graphs and overlay maps. Enforcement of the schedules was through the Provost Marshal.

Secrecy Against Air Attack

With the Build-Up came new problems for traffic control, for now we had thousands of military vehicles concentrating daily upon three or four Road Convoy Regulating Points (RCRP's) en route to quays and hards. As it became more difficult to spread by "space," it become more important to spread by "time." Nevertheless, every effort was made to use as many approaching roads as possible to the RCRPs, so that no one road would be congested. Desire for secrecy and security against air attack also dictated such steps. As a result one travelling over 95% of the routes used by convoys would not be impressed by the amount of military traffic on the roads even during the height of the operations. Also by careful planning of traffic circuits, all cross traffic was avoided within an area of 25 miles from the embarkation area. This was effected by allowing no east to west routings beyond that line. Also, the selection of the destination of the RCRP in relation to the point

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Lincoln Tunnel— The North tube of the Lincoln Tunnel will be opened to traffic on February 1, 1945, according to an announcement made by The Port of New York Authority. The North tube will accommodate westbound vehicles to New Jersey, providing 4 lanes across the Hudson River. On the same date the South tube, which now carries both eastbound and westbound traffic, will be converted to a one-way, two-lane eastbound roadway from New Jersey to New York.

The use of the North tube will mark another chapter in the latest conquest of the Hudson by The Port of New York Authority. Ground was broken for the South tube of the 80 million dollar Lincoln Tunnel in May, 1934, and for the North tube in February, 1937, just two months after the opening of the first tube. The under-river section of the second tube was holed through on May 2, 1938, and ten days later the Port Authority decided to suspend construction of the 7,500 foot-long roadway due to lack of sufficient traffic to justify its completion at that time. During the next three years, traffic in the single tube more than doubled, and construction of the second tunnel was resumed in June, 1941. In 1943 the South tube was used by 4½ million vehicles, and the estimated total for this year is more than 5½ million.

of departure of US convoys helped to eliminate cross traffic.

Coordinating British and U. S. Traffic

However, the main control was by a strict enforcement of march schedules. Daily meetings were held between representatives of the Road Traffic Hq. and the British at which time block timings, based on the number of convoys of each army moving during the 24-hour period, were allocated. Thus, conflicts between British and American convoys were avoided. Taking our block of timings, arrival times at the RCRPs were assigned to each convoy. Such factors as length of journey, type of vehicles, size of convoys were considered in this assignment. Based on a rate of march of 25 miles in 2 hours, the departure time for each convoy was determined.

In addition, and this was a very important control feature, all convoys were timed past a critical point normally located at one hour travel time from the destination RCRPs. If the convoy arrived at the critical point too early it was held there. An early comer was just as bad as a late comer, for by coming early it was using the block assigned to another. Late comers were told to increase their rate of march to make up lost time.

Rate of March

A word should be said as to the "rate of march" in force in the U.K. for military convoys. "Rate of march" (miles in an hour) must be distinguished from maximum speed (miles per hour). This Hq. was interested primarily in the former as a factor in the preparation and execution of march schedules, while the Provost Marshal was interested in the latter as a safety measure. The "rate of march" was expressed in terms of miles in *two* hours (viz. 25 MI2H). This came about as a result of providing for a ten minute halt before every *even* hour. Thus, the 25 miles were to be made in *110* running minutes. This allowed for the 10 minute halt. These halts were taken before every even hour so that all convoys would be taking their halt at the same time. Thus, a moving convoy would not be passing a halted convoy on these narrow roads.

Spacing of Convoys

A word should also be said as to the importance of the proper maintenance of distance between vehicles in the efficient use of the roads. (This was generally referred to as "*density*.") Theater directives provided that all convoys would maintain 60 yards distance between vehicles (expressed as 30 v.t.m.) (vehicles to the mile) both while in motion and at the halt. Otherwise, a convoy would have constituted a road block on every road over which it was passing, or on which it was halted. By proper spacing it allowed 60-yard safety aisles into which overtaking vehicles could pull as they moved up the line of convoy vehicles.

The success of the effort of this Hq. to provide traffic control is demonstrated by the fact that not one convoy was ever delayed in reaching its final destination due to traffic congestion. The safety record was phenomenal. Thus, traffic control and planning proved its value at one of the most important periods in military history. Never before has such an Army been gathered into such a small area and never before has such a vast movement, dependent upon exact timing for its success, been required of any Army. Our military leaders truly showed great foresight in setting up a Road Traffic Hq. to assure the even flow of traffic from the hinterland to the quays and ports from which they would embark to the shores of France.

Traffic Engineering in the Navy

by LT. COMDR. JOHN GALLAGHER

THE Domestic Transportation Officer of the Fourth Naval District is a member of the Commandant's staff and, in addition to traffic engineering activities, is in charge of:

(a) Procurement, assignment, operation and maintenance of automotive transportation equipment, approving requests to the Navy Department for obtaining or providing shore transportation facilities.

(b) Assisting the Under Secretary of the Navy (Transportation Branch) in the rehabilitation of motor vehicles returned to the Navy by contractors.

(c) Conducting transportation studies and organizing transportation plans and committees at Naval establishments and private plants having Navy contracts and seeing that adequate transportation is maintained for military and civilian personnel.

(d) Obtaining from public transportation agencies the most efficient utilization of their facilities and assisting them in obtaining priorities for the purchase of needed transportation equipment.

(e) Technical supervision of the District Tire Warehouse operated by the District Supply Office and directs a program of tire conservation for all activities in the Fourth Naval District.

(f) Controlling supervision of safety engineering relative to domestic transportation equipment; operation of equipment; safety equipment on vehicles.

(g) Administering policies and programs promulgated by the Under Secretary of the Navy regarding transportation facilities used for transporting freight or materials.

(h) Government Mileage Administration and directing the coordination of travel (conservation) between Navy and other government personnel via government and privately-owned vehicles. Granting of priorities for travel on public transportation facilities including travel by air and the securing of rail reservations for naval personnel.

(i) Arranging for and regulating motor vehicle gasoline and tire rationing in Naval establishments and handling detailed rationing work in connection with gasoline, tires and liquor for the Fourth Naval District Rationing Board.

The author is Domestic Transportation Officer, Fourth Naval District, Philadelphia, Pa., and is an Associate Member of the Institute of Traffic Engineers.

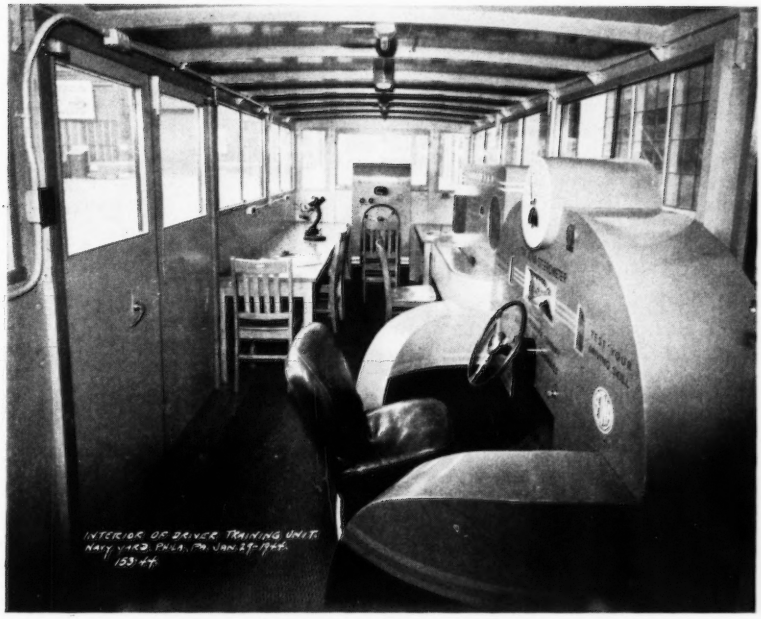
Traffic Engineering Section

The Traffic Engineering Section, considering war time restrictions and practicability, has accomplished most of the objectives of a modern T.E. organization, including the placement of standard signals, signs and markings in all of the large Naval reservations of some two hundred activities in the District. One of these reservations has a daily population exceeding one hundred thousand (100,000) persons.

Five other traffic and safety matters receive special attention:

(a) *Safe Equipment*

Maintenance of automotive transportation equipment (5000 units) with emphasis on brakes, lights, steer-



Interior of Driver Training Unit. *Official U. S. Navy Photograph.*

ing mechanism, windshield wipers, mirrors, wheels and tires. Each driver returning a vehicle to the garage must indicate defects on a trouble report. The garage foreman is held responsible for correction of defects before the vehicle is released. There are also detailed weekly, monthly or 1000 miles, and 6000 miles inspections.

(b) *Training Traffic Police and Law Enforcement*

The police training program includes functions and objectives of a traffic officer; prerequisites to efficient traffic regulation; position at intersection, use of whistle, hand signaling including mechanics of signaling, stopping and starting of vehicles, turns and the cycle; traffic law enforcement, etc. Standard traffic violation forms are used. There is rigid enforcement, flagrant violators are barred from the reservation and all violators must personally appear.

(c) *Safety Education*

1. A monthly safety letter for Navy drivers issued by the Safety Branch of the Division of Shore Establishments and Civilian Personnel receives standard distribution in the Fourth Naval District.

2. The National Safety Council No-Accident Driver Awards are signed by the Commandant and issued to drivers who operate Navy vehicles for one or more years without a preventable accident.

3. The *Safe Driver Magazine,* published by the National Safety Council, is made available to all drivers in the district.

4. Motor vehicle safety posters,

pamphlets and displays on automotive safety are distributed to activity transportation officers and chauffeurs who are required to read them.

5. The safety program in the Fourth Naval District includes the pedestrian too, who is reached through the use of large well-located outdoor billboards, pamphlets, plant publications and posters and messages spotted throughout the shops and offices at strategic locations.

(d) *Highways*

In the new establishment streets are constructed to provide free and safe movement of traffic. In old establishments streets have been widened, curbs cut back, channelization and safety islands built. Modern off-street parking facilities provided.

(e) *Drivers* (See Note No. 1)

The driver receives the most attention. Not only to insure the safety of Naval personnel and other persons using the highways, but to protect and conserve critical automotive transportation equipment, and facilitate the movement of naval personnel and property. District regulations require all military and civilian operators to take a driver examination. Should a driver fail in the test, he is assigned other work until he is re-examined and found to be qualified. The test consists of:

1. *Skill Test With Simulated Driving Conditions*

The first type of driving test is over an obstacle course set up on the station to test operators in the vehicles they will ordinarily drive. It consists of a series of skill exercises. The purpose of each skill exercise is to bring out some significant driving practice and to create the feeling, on the part of those tested, that skillful handling of a vehicle is not a "cinch" but requires sound physical characteristics, driving knowledge and highly developed skill.

The skill test includes:

(a) Parking.
(b) Smoothness in stopping.
(c) "S" test (judging clearance in turns).
(d) Driving on blocks (smoothness in using clutch).
(e) Backing.
(f) "H" test (judging location of bumpers).
(g) Double clutching (for large vehicles).

Many of the skill tests can serve as skill developing exercises. They are extremely useful in the training of inexperienced drivers and in training operators to drive a different type of vehicle than they are used to driving.

2. *Road Test in Normal Traffic*

The road test is used for the purpose of measuring the driver's ability to operate a vehicle properly under typical driving conditions. It is also for the purpose of acquainting each driver with his own limitations when driving in traffic and with driving situations which need to be practiced for correction and improvement.

Special emphasis is placed on observance of traffic signs, signals and markings, and on hand signals for turns and stopping during the road test. Hazardous passing of vehicles, speeding, faulty parking and other driving practices are noted.

3. *Clinic Test*

A mobile driver training unit

NOTE No. 1: Appreciation is expressed to the Governor of Pennsylvania and his Secretary of Revenue; to Mr. T. E. Transeau, Director of the Bureau of Highway Safety of the Commonwealth of Pennsylvania; and to Mr. A. W. Magee, Commissioner of Motor Vehicles, State of New Jersey, for their valuable assistance in this program.

PROCEEDINGS

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has been designed, constructed and operated under the direct supervision of the writer.

The mobile unit consists of a Reo 1½-ton tractor and a Gramm semi-trailer. The trailer is equipped as follows:

(a) Steerometer.
(b) Glare Test.
(c) Reactometer.
(d) Keystone telebinocular vision test.
(e) Snellen eye test.
(f) Peripheral vision test.
(g) Depth perception gauge.
(h) Motion picture and sound slidefilm projector.
(i) Safety pictures, charts and pamphlets.

Some of the testing equipment was obtained through the generous cooperation of the Aetna Life Insurance Company and the Bureau of Highway Safety, Commonwealth of Pennsylvania.

The mobile unit is used at naval shore establishments throughout the district.

4. *Knowledge of Driving Laws and Regulations*

In addition to Navy regulations, drivers must be familiar with the driving laws and regulations of the State in which they normally operate a motor vehicle.

The license issued by the Navy for driving in Pennsylvania is a joint U. S. Navy, Commonwealth of Pennsylvania certification permit to operate a motor vehicle. Licenses issued for the states of New Jersey and Delaware are the U. S. Navy vehicle operators' permit.

The figures shown below indicate results of the first 11,098 tests.

5. *Driver Record File*

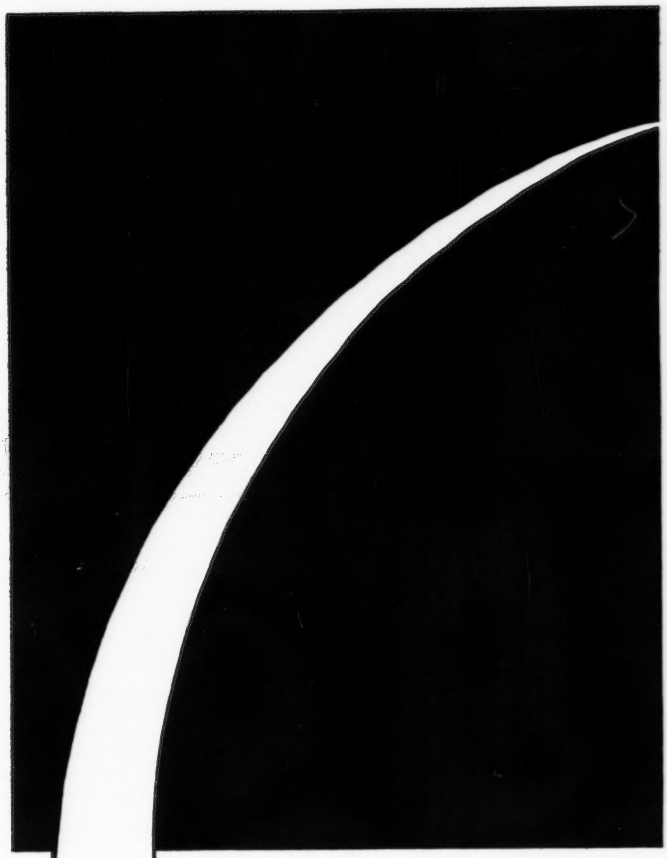
A Driver Record card is made for each driver examined by the Driver Training Clinic. It shows the driver's accident history, suspensions, and restoratons of driving permits, arrests and action taken, driver's station, types of vehicles permitted to operate, safety awards received and driving clinics attended.

Traffic authorities in Pennsylvania and New Jersey have cooperated by reporting to the Commandant any arrests and action taken when Navy drivers have been apprehended for a traffic violation. In some cases the traffic authorities issued a warn-

RESULTS OF 11,098 DRIVER TESTS

	Male	Female	Totals	
Passed 1st Examination	7358	601		
Passed Reexamination	1070	45		
Passed Reexamination for vision	22	1		
Total Passed, Male			8450	92.9%
Total Passed, Female			647	7.1%
Total Passed			9097	100.0%
TOTAL PERCENT PASSED				82.0%
Failed—Vision	353	125		
Failed—Additional training necessary	1207	203		
Failed—Motor laws	109	4		
Total Failed, Male			1669	83.4%
Total Failed, Female			332	16.6%
Total Failed*			2001	100.0%
TOTAL PERCENT FAILED				18.0%
Total Examined			11,098	

* Of the total number failed, 548 failed the reexamination.



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ing only and left further disciplinary action for the Commandant.

Close cooperation is maintained between the Commandant and the Commissioner of Motor Vehicles in New Jersey, the Pennsylvania Department of Highway Safety, the Philadelphia Accident Prevention Bureau and traffic authorities in many of the other cities throughout the District.

The Driver Record Cards make it possible to "Keep an eye" on the driving record of each driver and to help those who have difficulty in avoiding accidents. They help, too, in determining eligibility for safety awards.

(f) *Wounded Veterans* (See Note No. 2)

Some months ago, a program was inaugurated to train wounded veterans (one arm or one leg) to operate standard cars. The program has succeeded to the extent that the Commonwealth of Pennsylvania issued twenty-five unrestricted licenses at ceremonies at the Naval Hospital, Philadelphia, Pa., last month. It is the first time to my knowledge that persons with one arm or one leg have been trained to drive standard cars. This they have succeeded in doing when some twenty-five hundred (2500) other drivers in the District with both arms and both legs have failed. Skeptical reporters were driven safely and expeditiously through Philadelphia streets by the wounded veterans. The program is now in high gear and some fifty (50) additional veterans are now under training.

NOTE No. 2: Appreciation is expressed to the Secretary of Revenue, Mr. D. W. Harris; Mr. Arthur Burgoyne and Mr. Arthur Lewis, Commonwealth of Pennsylvania, for their assistance.

ORIGIN DESTINATION STUDIES BEING MADE

The Nebraska and Iowa state highway commissions are conducting a joint traffic survey to collect traffic facts needed for blueprinting post-war streets and highways. The survey is a scientific "origin-destination" study of the metropolitan areas of Council Bluffs, Ia., and Omaha. Council Bluff's portion of the survey already has been done by the Iowa highway commission.

Sixty interviewers for the Omaha area were trained at a school of instruction in the city hall, according to information to the American Public Works Association.

The survey will attempt to give a complete picture of the city's traffic and travel pattern. One home out of 10 — or approximately 8,000 — was visited. Interviewers asked how many persons at each home made trips the preceding day, where each trip started and ended and the method of transportation.

If a car is driven, information was obtained on the route followed and where the car was parked at the end of the trip. Other data collected by the interviewers includes the number of persons living in each home, their places of residence and type of employment before the war.

Homes visited were selected to give a representative cross section of Omaha. Besides the city proper, information was obtained in Ralston, Bellevue, Carter Lake and other built-up sections. Letters were mailed in advance to each home telling of the interviewer's visits.

Traffic Control Training

by MAJ. ROBERT HOLMES

TRAFFIC control training is provided for officers and enlisted personnel at the Provost Marshal General's School, at Fort Sam Houston, Texas. In order to give the reader an insight into the nature of the courses and their application to military personnel, the comprehensive three-week course is used as a guide. Following is a brief resumé of the course and its comparison with the Advanced, Officer Candidate and Basic courses of instruction.

Traffic Control Course—Duration, 3 Weeks

a. *Mission*—Designed to give selected officers intensive training in Traffic Control and Motor Transport as applied to the Combat Zone, Communications Zone (included Ports and Occupied Cities) and Posts, Camps and Stations.

b. *Scope* — The three major categories of the course are RECONNAISSANCE, PLANNING AND EXECUTION. Sub-divided, they include Fundamentals, Route Reconnaissance, Motor Marches, Control and Circulation Planning (March Tables, March Graphs, Circulation Maps, Schedules and Priorities), Traffic Control Devices, Control Techniques, Enforcement, Accident Investigation and Emergency Rerouting. Approximately 75% of the instruction involves practical work in the field. A "refresher" course in map reading is included early in the course to assure success of the field problems.

c. *Prerequisite*—Officers of all military organizations involved in the handling or movement of troops and supplies by motor vehicles. No officer who has completed, in some other course at the Provost Marshal General's School, the training as set forth in the short course is eligible for attendance.

Army Ground Forces

The Traffic course is designed primarily for Military Police Officers and Provost Marshals of the Divison, Corps and Army. The course is equally adaptable for Officers of the Corps of Engineers and Subordinate Units, as prescribed in Staff Officers' Field Manual 101-15 "Traffic Circulation and Control," 13 January 1943. All of the duties and functions of the Engineer in Traffic Control (e.g., Road and Bridge Reconnaissance, Traffic Circulation, Sign Posting and Route Marking and Supervision of traffic control at locations where engineer work is of prime importance) are covered in the course of instruction. Reports from overseas indicate that Traffic Control Sections are established in each regiment for control of their movement. The course of instruction adequately covers Organizational Control; e.g., Route Reconnaissance, Motor March Types and Techniques, Driver Selection and Training, March discipline and Column Control, Use of Guides and Guards and the Preparation and Reading of March Orders, March Graphs and March Tables.

The author is Chief, Department of Traffic, P.M.G. School, Fort Sam Houston, Texas, and is Associate Member, I.T.E.

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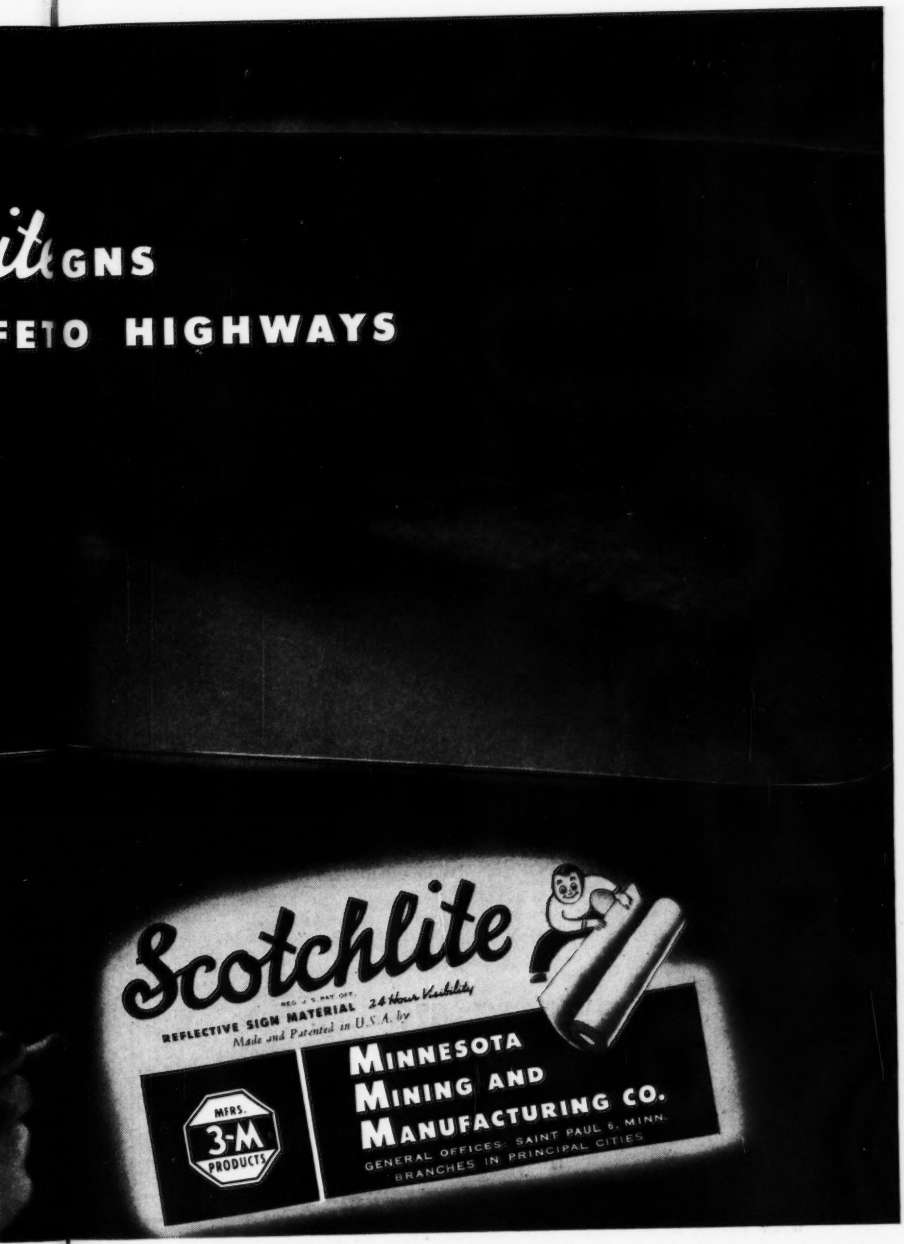
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Army Air Forces

The course of instruction applies to Army Air Forces officers who are primarily concerned with movement of supplies to and from air bases and traffic movement in the vicinity of base installations. Proper routing and scheduling of supply trains, regulation of traffic in and out of supply dumps, general control techniques, enforcement and accident investigation are thoroughly covered.

Army Service Forces

The course of instruction is designed primarily for all Army Service Force Military Police units operating in the Theatre of Operations and at Posts, Camps and Stations in the Zone of Interior. The course is of particular interest to Transportation Corps personnel who are training for work with the Field Army and Base Sections of the Communications Zone. The work of the Transportation Corps in connection with Motor Transport closely parallels that of the Military Police in the Theatre of Operations. The course of instruction adequately covers their duties in connection with the movement of troops and supplies from Ports through the Communications Zone. The course covers traffic surveys and selection of military routes in ports and other large cities, the routing and scheduling of large scale movements, establishment of priorities, circulation, march graphs and tables, use of regulating stations, communications, and general functioning of a Traffic Control Headquarters.

General and Special Staff Officers

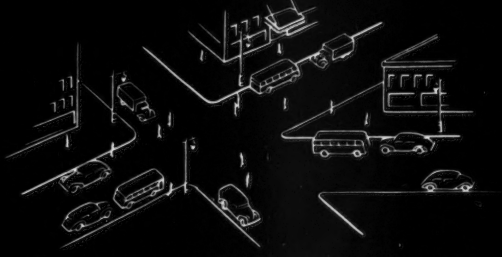
It has been reported by graduate

TRAFFIC COURSE

Subject	3-Week Hours	Advanced Officers Hours	O.C.S. Hours	Basic Officers Hours
1. Traffic Control Fundamentals	1	1	1	1
2. Driver Training	2	0	2	2
3. Difficult Driving	2	0	2	2
4. Motor Park Exercise	2	0	2	2
5. Motor March Reconnaissance	2	2	2	2
6. Reconnaissance Field Exercise	8	8	4	4
7. Traffic Surveys	2	2	2	0
8. Post Survey Exercise	4	4	4	0
9. Motor March Types	2	2	2	2
10. Motor March Technique	2	2	2	2
11. Communication	3	2	4	3
12. Routing and Scheduling	2	2	2	0
13. Motor March Graphs	1	1	1	0
14. Traffic Control Technique	2	2	2	2
15. Traffic Intersection Control Exercise	4	4	4	0
16. Traffic Control Devices	2	2	2	2
17. Traffic Field Exercise	8	8	8	8
18. Supervision, Liaison, Orders	1	1	1	1
19. Traffic Control Emergencies	1	1	1	1
20. Blackout Motor March	4	4	4	4
21. Traffic Control Enforcement	2	2	2	2
22. Traffic Accident Investigation	2	2	2	2
23. Urban Traffic Exercise	12	8	0	0
24. Motor March Planning Exercise	4	4	0	0
25. All Day Motor March	8	8	8	0
26. Area Traffic Control Exercise	14	8	0	0
27. Tactical Traffic Planning Exercise	4	4	0	0
28. Tactical Traffic Exercise	16	12	0	0
29. Summary and Critique	4	0	0	0
Total Hours	121	96	64	42

AT NIGHT

. . . ten times the hazard



Darkness is definitely on Death's side. On main traffic thoroughfares, the chance of meeting Death is ten times as great after dark. And most accidents, fatal or otherwise, occur on these main streets of populous areas. Most traffic hazards will be intensified when war restrictions end; but the dangers due to darkness can be effectively reduced by safety-engineered street lighting.

Have you put traffic-safety lighting where it belongs in your plans for civic betterment? *General Electric Co., Schenectady 5, N. Y.*

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students of the General and Special Staff Courses at the Command and General Staff School that a course of instruction such as the one prescribed in the three-week traffic course would have been of inestimable value prior to attending the Staff School. The course of instruction as outlined in the Scope provides the necessary background for the thorough study of the Staff Officers' Field Manual 101-15, "Traffic Circulation and Control," 13 January, 1943, as is now established at the Command and General Staff School. In addition, the traffic course provides a background for a complete understanding of the logistics of motor movements, covered in detail at the Staff School. Assistant G-3 and G-4 officers, Military Police Officers, Transportation Corps Officers, Engineer Officers, Regimental Officers and all other officers that would be concerned with movement of troops and supplies in their respective organizations will profit materially by the three-week Traffic Course prior to attending the General or Service Staff Courses at Leavenworth.

Comparson of the three-week course outlined above with other courses is shown in the table on the previous page.

Fifth Army Does Colossal Job

FIFTH Army Headquarters disclosed recently that since the landing at Salerno, combined "logistics" operations have resulted in movement of 2,255,000 tons of ammunition, food, clothing and equipment from ports and base dumps to the vast population of the Army.

"Every pound of this mountain of supplies has been moved somewhere along the line by trucks, which brings into relief the key problem in all supply procedure—transportation, and its corollary problem—traffic," the report stated.

To conquer the problems, headquarters said, a transportation section was set up which "has proved to be one of the most successful innovations in the Fifth Army's 'conflict of logistics'."

"A modern army travels not only on its stomach but on its wheels," the report made clear. "An infantry division," it said, "has about 1,800 vehicles; an armored division nearly 3,000.

"Put thousands of rear area service trucks on the roads with them and you have a traffic density that may send 10,000 military vehicles up and down a highway past one point in 24 hours.

Super Traffic Problem

"Into this flow of traffic—several times greater than that on the Lincoln Highway in the states — the Army may suddenly move an entire corps, involving 6,000 or 7,000 vehicles, and rush a battalion of tanks up the same road in the opposite direction. And it must all come off on schedule and without benefit of four-lane parkways, overpasses and traffic lights. Italy usually offers narrow, twisting mountain roads, some of them one-way, pocketed with bomb craters and chocked with by-passes around blown bridges.

"To combat this problem, Lt. Gen. Mark W. Clark organized a transportation section of his special staff, placed at its head one of the leading traffic experts in America, Lt. Col. Franklin M. Kreml (Affil., I.T.E.) of Evanston, Ill., former director of the Traffic Institute at Northwestern University, and gave the section authority to control all transportation.

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"Now, in charge of 6,000 personnel and with a pool of 1,500 trucks at his command, Col. Kreml and his staff operate and coordinate all Fifth Army traffic movements with the efficiency of a dispatcher sending several hundred trains a day in and out of Grand Central."

The section, it was explained by headquarters, has two main jobs: Moving anything the Army wants moved between base dumps and forward divisions, and controlling all highway traffic.

All Movements Charted

"The first job," the report said, "is handled by the 'guts of the section,' the freight division, headed by Maj. George T. Hench of Stockton, Calif., formerly a director of port operations on the Pacific Coast. Any unit that wants supplies moved must apply to this section a day in advance. There a dispatcher reviews all orders (some may require 500 trucks) and works out in advance a train-like round-trip schedule to the minute for all convoys for the day, based on the availability of trucks, train arrivals at railheads, the ability of forward dumps to handle the supplies, and tactical movements announced by troop commanders.

"By telephone, teletype and radio, the section then keeps a constant check on every convoy throughout its run, recording the exact time it reports at designated points or passes one of the six TCPs — Traffic Control Points — set up along the highways. All convoy movements are continuously plotted and graphed on a road chart according to speed and location, so that the transportation section has at all times a visual representation of traffic conditions on all of its main highways. In this manner dispatchers can quickly size up the traffic situation and adjust it at a moment's notice in accordance with emergency or priorty movements or varying road conditions.

"The control and traffic engineer division of the section is headed by a former assistant of Col. Kreml at Northwestern—Maj. Arthur R. Fosster, also of Evanston. He and his staff coordinate and control all highway movements, including all unit and casual vehicles, arrange march orders and schedule bivouacs and messes for the convoys.

"In a month they may travel 5,000 miles on road reconnaissance and another 7,000 miles putting up 1,500 or more signs. Responsible for all traffic regulations and their enforcement, they have written a 25-page Highway Traffic Control Code for the Fifth Army and published it in three languages — English, French and Brazilian.

"This is the section that keeps the supplies rolling. On a big day the freight division will move 15,000 tons and every minute of the day and night know where every ton is, how fast it is moving and when it can be expected at any point. When the Fifth was piling up supplies for the attack north of the Arno last fall, the traffic control division cleared 231 spearate convoys in one day, involving nearly 5,000 vehicles. On another occasion it supervised the movement by convoy of 12 divisions in four weeks."

Drivers Receive Praise

The report paid stirring tribute to the men who actually move the vehicles—terming the drivers "unsung Joes." Not infrequently, the report

---

American MP's have had their hands full keeping down the accident rate along the roads of France. Lined with well-meaning civilians who try to give flowers to the drivers of the truck convoys, they sometimes get so close to the line of traffic as to endanger themselves.

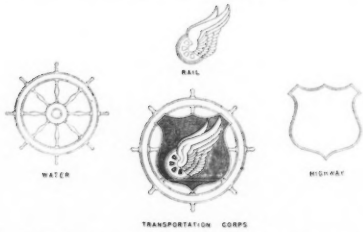
said, drivers are slated for routine runs of 24 hours or more, with a six-hour break, often make 400-mile round trips, drive all night through the mountains in blackout. Negro drivers were praised for doing about half this work and setting "excellent performance records."

"At the end of each convoy trip," the report also said, "crews of skilled mechanics in the truck battalions swarm over the vehicles at maintenance pits and check them from bumper to tail light. On duty in shifts all night, they are allowed just an hour and a half to service a truck and prepare it for another long convoy run with a new driver.

"The transportaton section has proved to be one of the most successful innovations in the Fifth Army's 'conflict of logistics.' Last spring Col. Kreml was called to Washington by the War Department for six weeks to report on the new setup and was then sent to England, where for two weeks he helped work out a similar system for American armies in the European theater.

"It was another striking instance of the manner in which all theaters of war have profited from the pioneer work of the Fifth Army in Italy."

Reprinted from *Transport Topics*.



Transportation Corps Insignia

The most widely-traveled insignia of the United States Army is shown. Yes, this emblem of the newest of the Army's seven technical services—the Transportation Corps, organized in July, 1942—has become the universal sign of action: speeding on the seas, roaring on the rails, hastening down the highway.

That is why the Corps insignia is no stranger not only to every nook and corner of the European Theater of Operations, but also to the stifling Persian and African deserts, the snow-laden Elburz mountains, the ice-packed Klondike and Yukon, the deserted "back country" of Australia, the tropical isles of the southwest Pacific, the jungles of Burma, and the almost inaccessible provinces of ancient China.

The winged car wheel representing the famed Military Railways Service, with its operating and shop battalions and the RTO's, charged on the shield of the familiar U. S. highway marker symbolizing the truck companies and highway controllers, within the eight spoked ship's wheel standing for the ports, port battalions, harbor craft companies, DUKW companies, the "Army's Navy"—all denote the efficient and effective coordination of rail, highway, and water transportation.

No more fitting description of the mission of the Transportation Corps has been expressed than by Major General Frank S. Ross, Chief of Transportation, when he enunciated this principle, this challenge—"The Transportation Corps will furnish the necessary transportation."

UNIFORM TRAFFIC CONTROL MANUAL REVISIONS PLANNED

At the meeting of the Joint Committee on Traffic Control Devices last month in Washington, D. C., major attention was given to improvement of warrants for traffic control devices, especially signs. This Committee, composed of representatives of the American Association of State Highway Officials, Institute of Traffic Engineers, and the National Conference on Street and Highway Safety, met to discuss revisions in the Manual on Uniform Traffic Control Devices for Streets and Highways.

It was agreed that the material contained in the Manual would be rearranged to a considerable extent to facilitate reading and checking. It was further agreed that the Manual should contain only the functional standards in warrants and should not develop into a field construction nor maintenance manual.

Six subcommittees were appointed by Chairman Hilts which will function throughout the coming year. The chairmen of these subcommittees are as follows:

Signs	Harry Neal
Signals	Bob Mitchell
Markings	Ross Harger
Islands	William Brandes
Special Problems	Burton Marsh
Editing and Printing of Manual	Charles Stark

In attendance were:

Henry E. Hilts, Chairman

Harry Neal	Graham Cole
Wilbur Smith	J. W. Johnson
Harold Hammond	Burton Marsh
Grant Mickle	Earl Reeder
Robert Mitchell	C. W. Stark
C. H. Sampson	William VanDuzer
George Elliott	D. W. Loutzenheiser
Charles Prisk	

THREE STATES UNDERTAKE SAFETY CAMPAIGNS

Three states — Wisconsin, Virginia and Michigan—currently are engaged in campaigns to curb traffic law violations and pedestrian accidents, according to the Council of State Governments.

Virginia started action even before its new motor vehicle safety responsibility act became effective January 1. The state's division of motor vehicles already has published and is distributing a folder explaining the act, designed to protect the public from reckless and irresponsible drivers.

While the new Virginia act is not a compulsory insurance law, the International Association of Chiefs of Police reports, it is specifically planned to compensate for injury and destruction of property by the criminal driver and the driver who does not operate his vehicle safely, and to remove such drivers from the highways.

State officials hope the advance publicity on the provisions and penalties of the new responsibility statute will not only enable Virginians to become entirely familiar with the law but to serve as a warning to those who fall back on the "ignorance of traffic law" excuse following violations.

Wisconsin's state motor vehicle department also has issued a folder, titled "Facts About Your Driver's License,"

Scotch-Lite Kits — Standard military traffic sign kits being supplied the Army contain Scotch-Lite sign blanks. In one sign reproduction kit will be found 600 sheets of the reflectorized blanks upon which may be stenciled traffic directions and other messages for use under blackout conditions or night traffic.

TUTHILL HY-WAY GUARD
The Spring Cushions the Post
Plan Tomorrow's Highway Today
and include in your Specifications—
TUTHILL HIGHWAY GUARD RAILS
TUTHILL Guard Rails possess these unusual features:
1. High visibility.
2. Deflective action.
3. Absorption of impact.
4. Quick installation.
5. Low upkeep costs.
SPECIAL NOTE!
TUTHILL Guard Rails are now available!
DON'T delay until the last minute the important decision regarding a PROPER Guard Rail to make safe, beautify and economize on your highway safety program, for post-war—and now! TUTHILL stands ready with a BETTER Guard Rail to fill your post-war and present needs in highway construction.
Pacific Coast Manufacturers and Distributors
U. S. SPRING & BUMPER CO.
LOS ANGELES, CAL.
TUTHILL SPRING COMPANY
764 POLK ST...CHICAGO 7, ILL.

which has as its main theme the message that "driving is a privilege—protect it."

The Wisconsin folder lists traffic offenses subject to revocation of a driver's license — which means surrendering the license for 12 months—and suspension of the license—which means loss of the license for periods up to 12 months.

Michigan's state safety commission and the Traffic Safety Association of Detroit, meantime, are engaging in a coordinated traffic safety program to reduce pedestrian fatalities and injuries; need for such a program became apparent when a study revealed that traffic accidents in Michigan during the first eight months of 1944 claimed lives of 233 pedestrians. Total traffic deaths for the period was 630 compared with 546 for the same period last year.

To make pedestrians more safety-conscious, a million leaflets and 50,000 posters were distributed; publicity on the campaign has included more than 3,000 column inches in newspapers, state and local officials' five-minute speeches, radio spot announcements, special school programs and motion picture trailers. Police hand pedestrian violators a leaflet, give a ticket to pedestrians whose actions are dangerous, and give both a ticket and leaflet to motorists with obviously defective lights.

First Bicycle Ordinance—To the City of Avalon, Pennsylvania, population 5,000, goes the honor of being the first city to register, license, and regulate bicycles. On May 22, 1897, they adopted an ordinance requiring registration and licensing of bikes, setting a speed limit of 10 m.p.h.

ITE NEWS AND PERSONALS

Associate Editors Appointed

Three additional associate editors were appointed upon approval of the Board of Direction last month. These new editors, whose job it will be to obtain articles and news items for TRAFFIC ENGINEERING and to assist in preparation of the finished product, are Karl A. Bevins (Jun.), Traffic Engineer, Georgia Power Co.; Aaron B. Horwitz (Assoc.), Cleveland City Planning Commission; and Raymond F. Riegelmeier (Mem.), Plant Protection Officer, Harrisburg, Pennsylvania.

Washington, D. C., Section Meeting

The Washington Section, I.T.E., reports that 40 members and guests attended the dinner meeting at the Fairfax Hotel on December 6, including several Institute members from out of town. Following a skit in which Ted Matson elicited some highly illuminating testimony from Burt Marsh as to planning and planners, the speaker of the evening, Captain H. C. Whitehurst, Director of Highways for the District of Columbia, discussed the findings of the recent transportation survey in the District.

Members present included Earl Allgaier, L. A. Andriacchi, W. L. Braun, C. F. Cashell, R. W. Crum, J. B. Ecker, M. O. Eldridge, W. G. Eliot, H. F. Hammond, E. H. Holmes, D. W. Loutzenheiser, B. W. Marsh, D. G. Mickle, J. H. Mitton, O. K. Normann, C. W. Prisk, W. L. Robinson, M. C. Stark, P. J. Stupka, and W. A. Van Duzer.

Out-of-town I.T.E. members were D. S. Berry, T. M. Matson, E. J. Reeder, W. S. Smith and H. S. Simpson.

Other guests were H. C. Whitehurst (District of Columbia), H. E. Hilts and W. H. Simonson (Public Roads Administration), A. B. Barber and C. W. Stark (U. S. Chamber of Commerce), W. T. Adams, W. F. Boardman, J. I. Knott and D. J. Locke (Capital Transit Co.), John Gibbons (Automotive Safety Foundation), W. I. Cleveland (D. C. Motor Club), D. K. Chacey and J. E. Loughran (U. S. Army), H. L. Toadvine (War Department) and D. O. Opstad (Minnesota Mining and Manufacturing Co.).

The next scheduled meeting will be on the evening of January 17, when Mr. W. A. Van Duzer, Director of Vehicles and Traffic, District of Columbia, (Member I.T.E.), will be the speaker.

New York I.T.E. Section

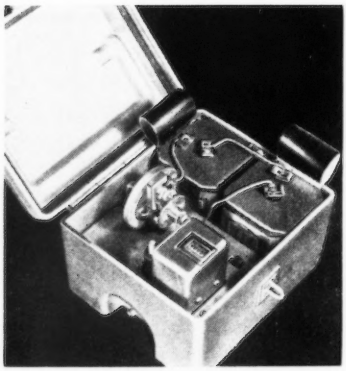
The January 18th dinner-meeting is scheduled for the second night of the A.S.C.E. 82nd annual meeting to make it convenient for out-of-town I.T.E. members to attend the Section meeting, according to T. M. Matson, chairman.

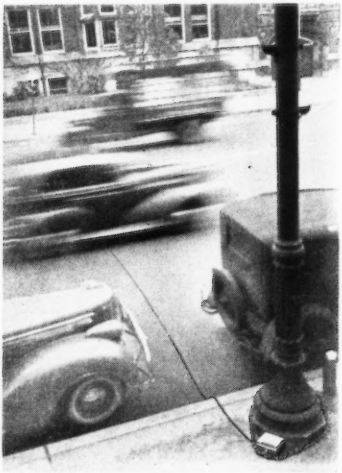
H. W. Giffin, New Jersey State Highway Engineer of Survey and Plans, will discuss informally the influence of traffic operational demands on highway design, drawing on his long experience in New Jersey.

WHAT HIGHWAY ENGINEERS say about TRAFICOUNTERS

Many state and city highway engineers are using Streeter-Amet Traficounters. Here's what some of these engineers say about them:

1. "Our seven portable traffic recorders are used periodically for traffic counts on urban streets and for determining changes in traffic at scattered points on our rural highway."
2. "We use mechanical counters almost exclusively in our work and have been doing so for several years."
3. "We use them for continuing traffic survey on State Trunk system; preparing for a traffic survey of secondary and feeder roads, and possibly municipal streets. Mechanical counting equipment is indispensable in this type of work."
4. "We are now using ten of your model RC Traficounters and are well pleased with their performance."





Write for a complete Bulletin

STREETER-AMET COMPANY
4105 Ravenswood Avenue
Chicago 13, Illinois

Traficounter

Those desiring to reserve dinner should contact Henry Evans, Secretary of the N. Y. I.T.E. section, at the National Conservation Bureau, New York City.

TRAFFIC SESSIONS PLANNED

The Institute of Traffic Engineers will serve as a cooperating agency in connection with the sixteenth Annual Safety Conference and Exposition, March 20 to 23, 1945. The Institute will be represented by Henry K. Evans, Traffic Engineer of the National Conservation Bureau and Editor of TRAFFIC ENGINEERING. Mr. Evans has also been appointed as Vice-Chairman of the Conference Program Committee in charge of the Traffic and Vehicle Division and with his committee, composed of Merwyn Kraft, Burke Smith, Dr. Herbert Stack, and William L. Meyer, is arranging the programs for the three traffic sessions and two commercial vehicle sessions.

Traffic Session No. 1, March 21

Merwyn Kraft, (Affiliate, I.T.E.) Accident Prevention Engineer of the American Transit Association, is developing the Traffic Engineering session on Planning for Future Traffic on Existing Streets. Edgar F. Copell (Mem., I.T.E.) Massachusetts State Traffic Engineer, will deliver the principal address, to be followed by comments from Theodore M. Matson (Mem., I.T.E.), Director, Yale Bureau of Highway Traffic, and two others not yet announced. Guy Kelcey (Mem., I.T.E.) will serve as chairman of this two-hour session.

Traffic Session No. 2, March 22

Over-age Automobiles will be the theme of this panel session, being arranged by Burke Smith, New York Office of the National Safety Council. William Greene, Director, Connecticut Highway Safety Commission, will act as chairman, and the panel will be made up of the following: Robert Raleigh, Acting Director, Safety Division, I.A.C.P., John Fader, Manager, Delaware Safety Council, Chief of Police John Gleason, Greenwich, Conn., and two others not yet announced.

Traffic Session No. 3, March 22

This session, under the chairmanship of Dr. Herbert J. Stack, Director of the Center for Safety Education, New York University, will deal with Rehabilitation and Training of Disabled Drivers—Civilian and Serviceman. Speakers will include: George Ziegler, Chief Inspector, New Jersey State M. V. Department; Joseph Elkow, Brooklyn College Instructor; Lt. Col. Norman Q. Brill, Consulting Psychiatrist, Surgeon General's Office; Robert Catlin, Secretary, Aetna Life Insurance Company; and Maxwell Halsey, Michigan State Traffic Commission.

Commercial Vehicle Sessions, March 20, 21

These two sessions will cover the following subjects: Driver Education, Driver Responsibilities for Pedestrian Safety, The Pedestrian in Traffic, Value of Driver Awards, and Driver Responsibility for Accidents. William L. Meyer, New York Safety Council Commercial Vehicle Section Chairman, is planning these sessions.

First Auto Race — Thanksgiving Day, 1895, witnessed the first auto race in this country, according to the Associated Press. Charles Duryea, the winner, sped over the 100-mile course between Chicago and Libertyville, Illinois, at an average rate of eight miles an hour.

INSTITUTE ACTIVITIES TEN YEARS AGO

Items taken from the Institute News Letter dated January, 1935.

Members Elected

John T. Gibala, Member
Otto K. Jelinek, Member
A. B. Horwitz, Associate Member
Ralph A. Reid, Associate Member
Nathan Avins, Associate Member
Eugene Cherry, Junior Member

New Signals In Washington, D. C.

For more than a year the Dept. of Vehicles and Traffic of the District of Columbia has successfully operated a three-phase signal in a two-phase progressive system. This signal requires a special timer which is brought into step with the other signals at the end of each third interval, by the master controller of the system. This signal, operating at 13th St. and Pa. Ave., holds westbound traffic on the Avenue while eastbound traffic continues to flow, thus permitting a large volume of eastbound left-turn traffic to move without interruption into 13th Street. The same plan has recently been applied to the intersection of 15th St. and Pa. Ave. to facilitate street car turning. Here again the three-phase movement is used, one interval permitting traffic to move on Pa. Ave., the second permitting traffic to move north on 15th St., and the third interval permitting street cars only to turn from Pa. Ave. north into 15th St. while at the same time traffic flows south on 15th St.

The special street car interval is noteworthy because of its accompanying signal indication wherein two red lights, one below the other, appear simultaneously. While this indication is unusual, no confusion has been noted after the first few days of operation. The street car movement has been speeded up perceptibly, and by eliminating the conflict between street cars and motor vehicles, the third phase has not increased the delay to motorists. A similar installation is operating very successfully at 17th and H Sts.

SEE PAGE 131

Model "A" to Return—Ford Motor Company officials say that Ford plans to build another Model "A" after the war to sell for $500.00, in addition to the V8, Mercury and Lincoln. In Detroit it is felt that while the aim would be $500.00 plus extra tires, taxes, and miscellaneous items, increased labor and materials costs might force a higher price.

It would be a four cylinder job, streamlined, and very simple, probably forcing other companies to offer stripped-down cars for post-war—*Automotive News, July 4, 1944.*

PERSONALS

Colonel Robert H. Burrage (Assoc.) reports that he has no present connection with traffic engineering. He is now C.O. of the 1749th Engineer General Service Regiment being formed and trained for overseas service. During the winter of 1943-44, Burrage served in the Mediterranean theater as executive officer to the Chief Engineer, Allied Forces, returning to the U. S. in February 1944 to assume his present duties.

Capt. W. E. "Skinny" DeYoung (Assoc.) on leave from the Automatic Signal Company (Division Manager) (Assoc.) is responsible for the following letter to the Editor:

"Your loving letter reached my sand jetty after long trip by many means of transportation. No important news for your publication. Me and Pershing won the last war in less than two years with one third the troops. They will not let us fight in this one. We are defensive troops. Pershing guards Walter Reed Hospital; me, the Columbia River. You cannot win a war with your best troops thousands of miles from enemy unless you talk them to death. Will try this. Lost my chance when I told a General he could put two bars, two stars or any other hardware on a horse's tail but he would find the same part of the anatomy underneath as before. He claimed he was insulted. That was the intention.

Traffic Engineering after the war good subject for National Convention after this war if we live so long. Successful outcome of Convention depends on two things. First: Meeting place of Convention should be Tarzana, California. Will gladly allow my goat ranch to be used for this purpose. Plenty of goat milk available. Also have several fine lots that can be purchased by delegates at very low cost. As you know, the climate (20,000 words deleted by publisher to save paper). Second: Increased use of vehicle actuation imperative if my goats are going to continue eating. Advertisement paid for by automatic otherwise omit. San Fernando Goat Herders Association refuse to spend the money.

Please do not send me anything for Christmas. It would only get full of sand before I could drink it." Skinny DeYoung.

Captain Edwin Clark (Mem.), formerly with the New York State Division of Highways, was reported to be on the way home in December, after having been overseas for two years.

Captain D. J. Faustman (Assoc.), on leave, Assistant Planning and Traffic Engineer, Sacramento, California, reports he is Assistant Chief of the Applied Electronics Branch at the Engineer Board, Fort Belvoir, Virginia, and is presently concerned with mine detection and navigation instruments.

Lt. Col. Melvin J. Bankhead (Mem.) was recently transferred to the Transportation Corps. During a recent visit to Institute Headquarters, Colonel Bankhead mentioned the fact that he had been teaching radar for the past several years and was very happy about the prospects of getting back into the field of traffic and transportation. He asks that any mail be sent to him in care of his wife at 220 North First East, Logan, Utah, since he expects to be overseas by the time this is in print.

Captain Ed Ricker (Jun.), formerly with the Vermont Highway Department is Chief of the Radiation Branch at Fort Belvoir, an organization doing very "hush-hush" work on new types of secret devices.

Captain Robert Swain (Assoc.), formerly with the Texas Highway Department, now is reported to have become an expert on pontoon bridges. He is stationed at Ft. Belvoir, Va.

Charles Cashell (Assoc.), formerly with the Washington, D. C., Department of Vehicles and Traffic and now Associate Engineer, Engineer Board, Fort Belvoir, Virginia, is engaged in research on illumination and other electrical engineering problems, besides some traffic engineering problems that come up from time to time.

Captain Phillip Taylor (Assoc.), formerly with the Chicago Park District, is Assistant Chief of the Radiation Branch at Fort Belvoir.

TRAFFIC SIGNALS by CROUSE-HINDS

FOUR WAY ADJUSTABLE FLASHING SIGNAL

Make those dangerous intersections safer with a flashing warning signal!

The adjustable type flashing signal is admirably suited for use at irregular intersections. It is generally mounted on a span wire over the center of the intersection, although any standard method of mounting is available. The adjustable signal can be furnished with as many as six faces, while the square non-adjustable type is limited to four faces.

Normally, the signal flashes amber to the main street and red to the cross street. To emphasize the meaning of these flashing indications, signs reading CAUTION are used below the amber lenses, and signs reading STOP THEN GO below the red lenses.

The signs are of translucent glass with black letters on a white background. Illumination of the signs is by means of a 200-watt baselight suspended between the signal faces. This baselight also illuminates the intersection, thus reducing the accident hazard still further.

CROUSE-HINDS COMPANY

SYRACUSE 1, NEW YORK, U.S.A.

GO — CAUTION — STOP

Lt. Col. Light "Bud" Yost, (Affil.), on leave, Department of Public Relations, General Motors Corporation, writes from overseas:

"I left Seventh Army in May and made a hurried dash to England to get in on the show here. Kirk Keegan took over as Transportation Officer on my leaving. I entered the picture here as Chief of Land Operations and moved up recently to Deputy Transportation Officer. My operations are quite a bit larger than those with Army and consequently we have a larger staff, but the work is about the same although with greater responsibilities. One of our operations was the Red Ball Highway, about which you may have read some of the highlights. Both *Yank* and *Stars and Stripes* have carried feature articles on it. When you get up into thousands of trucks operating on an 800-mile turn-around and on an exclusive highway system converted to one-way, problems develop that just aren't covered by "book larnin'". Sure would like to have Ted Matson here with us to apply his know-how to some of our traffic problems. Our Traffic Engineering staff is kept busy day and night on current operations and future planning.

Kirk and Oscar Gunderson are in the theatre and I saw them both about a week ago. My time was limited as we are quite a ways apart but we hope to get together again one of these days. Reynolds Weaver is somewheres near them but he hasn't turned up as yet. Hope to get together with him one of these days. Our days never end until 12:00 or 1:00 each night and often an all night session develops when things are critical so there is little time for extra-curricular activities.

This is certainly a war of transportation as you can well imagine by the rapidity of progress at various times and the tremendous areas involved. The Automotive Safety Foundation is certainly well represented, either directly or indirectly for I cannot think of one major command or operation that does not have at least one officer who has been associated in one way or another with the activities of the Foundation. I have several traffic engineers here that were formerly with state highway departments or the T.E. departments of some of the larger cities. I see Ed Wetzel quite often and George Grotz is not too far away. Wally Gove and Gordon Gravelle stop in once in a while. John Beakey was with me for a while and I expect him to be back most any day. He did an outstanding job during the early days of the operation.

It's a great life and there is no such thing as monotony as the picture changes too fast. However, we'll all be glad when this is over and we can have some of the comforts and pleasures that are so far away now.

Just so you won't sympathize too much, I am deliberately setting in front of me a bottle of Clicquot Champagne (1929 vintage) and if that doesn't satisfy you I'll support it with a bottle of Pommery's, Mumm's, Piper Heidsieck or what have you."

I.T.E. Members Receive Honors

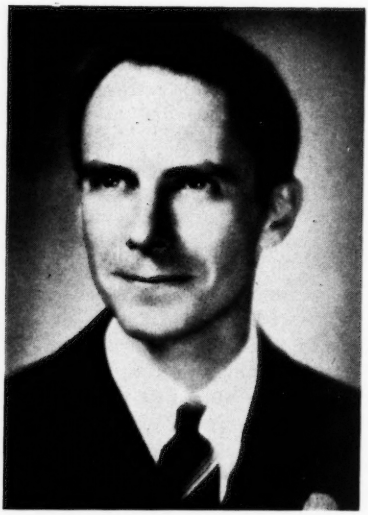
Word has been received that Lt. Colonel Light "Bud" Yost, Affiliate, has won the Legion of Merit award for outstanding skill and performance in organization of transportation facilities in the North African and Sicilian campaigns. Major G. W. Barton, Member of the Institute, also received the Legion of Merit medal last year as reported in the January, 1944, issue of TRAFFIC ENGINEERING. Lt. Col. F. M. Kreml, Affiliate, received a letter of high commendation from General Mark Clark, praising Kreml's work in connection with the Italian Campaign, as reported in the May, 1944, issue.

Lt. Wallace Gove (Assoc.), formerly Worcester City Traffic Engineer, now with Traffic Headquarters, 1st U. S. Army, overseas, writes, "I expect to see Bill Jones (Yale '41) and Steve Butterfield shortly on business. Ed Wetzel, Bud Yost, and Ellis Mathes I run into occasionally also. Sgt. Mathes has passed the board for a direct commission."

Lt. Lawrence Hendrickson (Jun.) is the only I.T.E. member who is a prisoner of war. His address is: U. S. Army, Prisoner of War, Interned by Japanese, Philippine Prison Camp No. 1, Through New York. **Why not write Hendrickson a letter? Editor.**

Captain W. H. Mann (Assoc.), Advanced Section, Communications Zone, Transportation Section, reports that he sees Lt. Colonel Yost, Lt. Butterfield, and Captain Guthrie frequently, as they are stationed at the same headquarters.

William S. Canning (Mem.), Engineering Director of the Keystone Automobile Club, Philadelphia, was recently placed on inactive reserve. As a Major in the Ordnance Department, A.S.C., Bill Canning's job was to see that no transportation difficulty of any nature interfered with the production of Ordnance material from the New York line to the Georgia line embracing the eastern half of Pennsylvania, the southern half of New Jersey, and all of Maryland, Delaware, Virginia, North Carolina, and South Carolina.



Thomas E. Willier (Mem. I.T.E.) has joined Douglas Leigh, the young electric sign entrepreneur of Rockefeller Center, New York City, as Market and Traffic Analyst. Mr. Willier, picture shown above, will study Douglas Leigh's advertising business in connection with Leigh's plans for post-war development of outdoor advertising. Mr. Willier's work will include the study of locations to determine traffic circulation and impression values, the result of which study will enable Douglas Leigh to give advertisers the highest returns on their advertising. His work will also include the study of the attraction value of animation displays as compared with static displays.

Mr. Willier was one of Dr. Miller McClintock's (Mem., I.T.E.) principal traffic auditors for three years, 1937 to 1940. In 1940, Mr. Willier became Traffic Engineer for the City of Houston, Texas. He was with the City of Houston until February, 1944, when he became Assistant Professor of Transportation and Research Associate in the Bureau for Street Traffic Research at Yale University.

The Detroit Civil Service Commission announces opportunities for Engineers and City Planners at induction salaries ranging from $760 to $4,830 per year not counting overtime. Residence rules have been waivered. Application information may be obtained from the Detroit Civil Service Commission, 75 Randolph Street, Detroit, Michigan.

New A.A.S.H.O. Officers Elected

At the 30th Annual Meeting in November in Cincinnati, the American Association of State Highway Officials elected Herman A. MacDonald, Commissioner of Public Works for Massachusetts as the new President and Hal G. Sours, Director of Highways for Ohio, as First Vice-President. Thomas H. MacDonald, Honorary Member of I.T.E., Commissioner of Public Roads Administration, was re-elected as a Member of the Executive Committee.

What Do You Call Them?

The city of Los Angeles Police Traffic Bureau wants to know what to call traffic lanes so as to distinguish one from the other. In a letter directed to the Editor of TRAFFIC ENGINEERING, Deputy Chief Caldwell makes a plea to the Institute of Traffic Engineers to answer this vexing problem as outlined in the following extracts from his letter:

"This Bureau is preparing a departmental guide to accepted traffic operations. The tentative manual embraces both policy and procedure and is based on nationally approved standards, slightly modified by local demands. It is designed to develop and insure greater uniformity in traffic control, and in connection therewith, we encounter a vexing problem; how to properly describe a traffic lane.

Courts, prosecutors, witnesses and officers, when mentioning traffic lanes, describe them in such manner that a location at times becomes so vague that the issue is lost in confusion.

A four-lane highway may be used as an example: The lane next to the double dividing line may be described in that manner, or as the No. 1 lane, No. 2 lane, outside, inside, middle, center, etc. Standard traffic engineering manuals appear to be silent on this subject; therefore, we seek advice from those prominent in the field of traffic engineering by requesting answers to the following questions:

1. What is the proper description of the opposing lanes of a two-lane highway?
2. Of a three-lane highway?
3. Of a four-lane highway?
4. Of a six-lane highway?
5. Of an eight-lane highway or more?
6. If a street is sufficiently wide to provide four or more lanes, but is marked with only a center line, is the street to be called a two-lane or four or more lane highway?
7. (a) If space on the street adjacent to the curb is utilized for parking, is it described as a parking lane?
   (b) Would the presence or absence of a parallel parking line affect the description?
8. If a street has four marked driving lanes and also has two marked parking lanes, would the street be described as a four- or six-lane highway?"

Comments will be sincerely appreciated. Please direct your replies to Institute Headquarters.

Purdue Road School

The Indiana Traffic Engineers Association, organized in January of this year, became affiliated with the Purdue University Road School as a cooperating agency and will take part in the 31st Annual Purdue Road School to be held at Purdue Univercity, West LaFayette, Indiana, on January 29, 30, and 31, 1945. The school is under the direction of the School of Civil Engineering and Engineering Extension Department.

Kansas Highway Commission Changes

First Lt. Bryan Wilson, 365th AA SL Bn., has been placed on inactive status in order to resume his work as Traffic Engineer, State Highway Commission of Kansas. Lt. Wilson was Battalion Motor Transport Officer during his seventeen months of service in the Coast Artillery Corps.

Lt. (J.G.) Claud McCamment, formerly Safety Engineer, Kansas Highway Commission, is now in the Navy.

LOOKING AHEAD

SEVENTEENTH ANNUAL SOUTHERN SAFETY CONFERENCE, Winston-Salem, N. C., March 18-20, 1945.

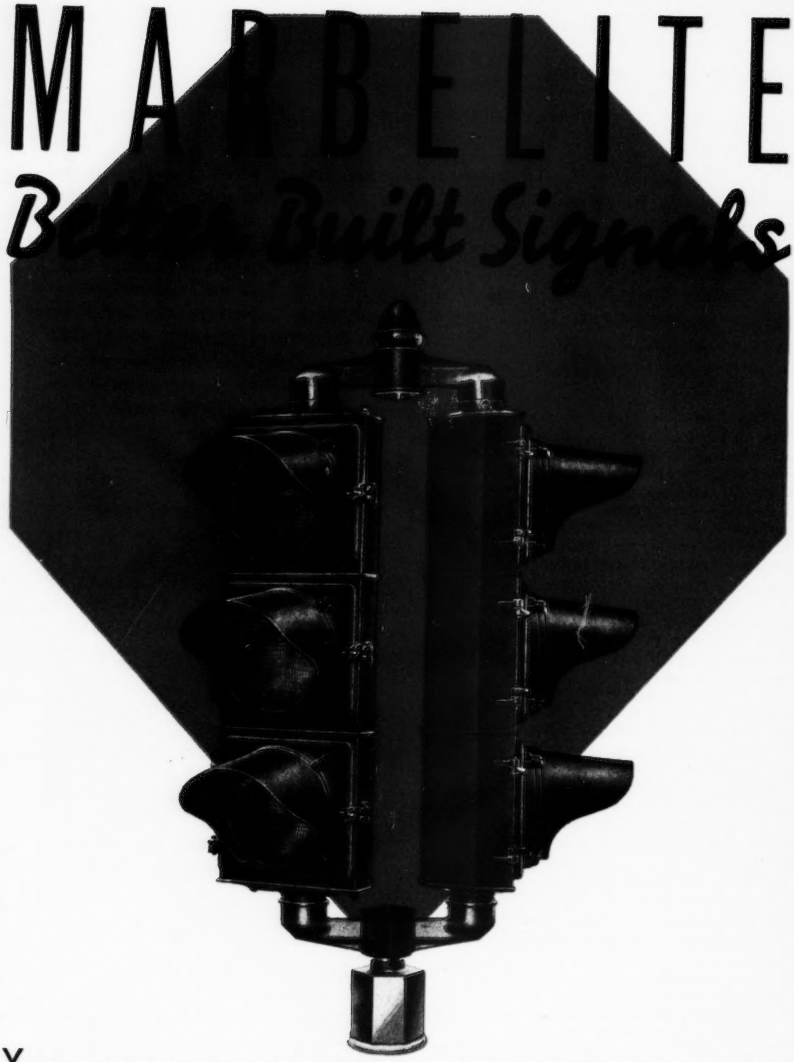
EIGHTH NATIONAL TRAFFIC TRAINING INSTSTUTE, Oregon State College, Corvallis, Oregon, March 19 to 30, 1945. (See p. 107, Dec. issue.)

SIXTEENTH ANNUAL CONFERENCE, GREATER NEW YORK SAFETY COUNCIL, Hotel Pennsylvania, New York City, March 20, 21, 22, 23, 1945. Traffic Engineering Sessions, March 21 and 22nd.

INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION, INC., 50th Annual Meeting, Hotel LaSalle, Chicago, September 24-27, 1945.

MARBELITE

Better Built Signals



YOU can determine by just looking at this advanced design of a Two Way, Three-Color adjustable Signal that it is BETTER-BUILT.

Note the reinforced aluminum mounting brackets that replace the conventional pipe and fitting assembly. A compact, sturdy arrangement, eliminating small, minor parts.

You bet! It is BETTER-BUILT quality.

That isn't all, but it gives an idea of why Marbelite Signals are approved by numerous State and City Traffic Departments as well as Traffic Associations, and why there are so many thousands of Marbelite Signals in use in these Cities and States.

Familiarize yourself with other Marbelite features, such as the unbeatable optical unit. You will be proud to have such fine quality Signals regulating traffic in your community.

THE MARBELITE COMPANY, INC.

26 WARREN STREET **NEW YORK 7, N. Y.**